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Patent claims

1. A method for detecting the presence of a prescribed heat exchanger (2), in particular a catalytically active radiator in a motor vehicle, comprising the following method steps during operation of the motor vehicle:

(S1) observing a temperature of a heat-exchanger medium and at the same time observing further current operationally relevant parameters (12) of the motor vehicle for a given time window (tf);

(S2) detecting an expected temperature gradient over time of the temperature of the heat-exchanger medium;

(S3) detecting the current temperature gradient over time of the temperature of the heat-exchanger medium; and

(S4) detecting the presence of a prescribed heat exchanger (2) by taking into account the expected temperature gradient and the current temperature gradient.

2. The method as claimed in claim 1, characterized in that method step (S1) comprises the following substeps:

(S1-1) measuring values of the temperature of the heat-exchanger medium in predefined time intervals and plotting the time profile of these values; and

(S1-2) measuring values of the operationally relevant parameters (21) at predefined time intervals and plotting the time profiles of these values.

3. The method as claimed in either of the preceding claims, characterized

in that method step (S2) comprises the following substeps:

(S2-1) comparing the plotted current operationally relevant parameters (21) with predefined values;

(S2-2) determining an associated current operating state in accordance with this comparison; and

(S2-3) determining the temperature gradient expected in this current operating state.

4. The method as claimed in one of the preceding claims,
characterized
in that the current temperature gradient is detected in method step (S3) by taking into account the current values of the temperature of the heat-exchanger medium plotted in the time window (tf).

5. The method as claimed in one of the preceding claims,
characterized
in that method step (S4) comprises the following substeps:

(S4-1) comparing the current temperature gradient with the expected temperature gradient;

(S4-2) taking into account this comparison result with reference to a predefined threshold value; and

(S4-3) transmitting data signals when a prescribed heat exchanger (2) is present.

6. The method as claimed in one of claims 1 to 4,
characterized
in that method step (S4) comprises the following substeps:

(S4-1) comparing the current temperature gradient with the expected temperature gradient;

(S4-2) taking into account this comparison result with reference to a predefined threshold value;

(S4-3) incrementing at least one counter (16) in accordance with the comparison result from substep (S4-2);

(S4-4) carrying out method steps (S1) to (S4) until a predefined counter reading is reached; and

(S4-5) outputting data signals when a prescribed heat exchanger (2) is present.

7. The method as claimed in one of the preceding claims,
characterized
in that the time window (tf) is determined by a first time (t1) by at least one operationally relevant parameter reaching a predefined starting threshold value (SSW), and in that the time window (tf) is determined by a second time (t2) by the same or at least one further operationally relevant parameter (21) reaching the same or a further predefined ending threshold value (BSW).

8. An apparatus for detecting the presence of a prescribed heat exchanger (2), in particular a catalytically active radiator in a motor vehicle, comprising:

- at least one heat exchanger (2) with a heat-exchanger medium of the motor of the motor vehicle;
- at least one measuring device (5) for measuring the temperature of the heat-exchanger medium; and
- an evaluation device (13) for evaluating data and for detecting the presence of a prescribed heat exchanger (2).

9. The apparatus as claimed in claim 8,
characterized

in that the measuring device (5) has at least one temperature sensor (10) for measuring the temperature of the heat-exchanger medium; a holding element (6) for holding the temperature sensor (10); and a connection device (8) for connection to the evaluation device (13).

10. The apparatus as claimed in claim 9, characterized in that the holding element (6) is connected to the heat exchanger (2) in a non-releasable manner.

11. The apparatus as claimed in either of claims 9 and 10, characterized in that the holding element (6) for holding the temperature sensor (10) has a holder (7) which corresponds to said temperature sensor.

12. The apparatus as claimed in one of claims 9 to 11, characterized in that the temperature sensor (10) has a predetermined breaking point and is connected to the holding element (6) such that the temperature sensor (10) is rendered permanently inoperable after said temperature sensor (10) is removed from the holding element (6).

13. The apparatus as claimed in one of claims 9 to 12, characterized in that the temperature sensor (10) is a constituent part of an adapter (9) of the connection device (8).

14. The apparatus as claimed in one of claims 9 to 13, characterized in that the adapter (9) and the holding element (6) have corresponding fastening elements (11) which are

designed such that they cannot be released following assembly.

15. The apparatus as claimed in one of claims 8 to 14, characterized
in that the evaluation device (13) has a memory device (15) for storing values of time profiles of measured values, a data memory (27) for storing predefined threshold values, operating state data and the like, and at least one counter (16).

16. The apparatus as claimed in claim 15, characterized
in that the evaluation device (13) is a constituent part of an on-board computer (14') of a motor vehicle.